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Grade: Technical.
Use: Dye synthesis.

acenocoumarin. (3-(α-acetonyl-4-nitrobenzyl)-4-hydroxycoumarin). $C_{19}H_{15}NO_6$.
Properties: White, crystalline powder; tasteless and odorless; mp 197C. Slightly soluble in water and organic solvents.
Use: Medicine (anticoagulant).

acephate. (acetylphosphoramidothioic acid ester). CAS: 30560-19-1. $C_4H_{10}NO_3PS$.
Properties: White crystals; mp 65C; soluble in water; slightly soluble in acetone and alcohol.
Hazard: Moderately toxic by ingestion.
Use: Insecticide.

ACerS. See American Ceramic Society.

acetadol. See aldol.

acetal. (diethylacetal; 1,1-diethoxyethane; ethylidenediethyl ether). CAS: 105-57-7. $CH_3CH(OC_2H_5)_2$.
Properties: Colorless, volatile liquid; agreeable odor; nutty aftertaste. Stable to alkalies, but readily decomposed by dilute acids. Forms a constant-boiling mixture with ethanol. Soluble in alcohol, ether, and water. D 0.831; bp 103–104C; vap press 20.0 mm Hg (20C); flash p −5F (CC) (−20.5C); specific heat 0.520; refr index 1.38193 (20C); wt (lb/gal) 6.89; autoign temperature 446F (230C).
Derivation: Partial oxidation of ethanol, the acetaldehyde first formed condensing with the alcohol.
Grades: Technical.
Hazard: Highly flammable. Dangerous fire risk. Explosive limits in air 1.65 to 10.4%. Moderately toxic and narcotic in high concentrations.
Use: Solvent; cosmetics; organic synthesis; perfumes; flavors.
See also acetal resin.

acetaldehyde. (acetic aldehyde; aldehyde; ethanal; ethyl aldehyde). CAS: 75-07-0. CH_3CHO.
Properties: Colorless liquid; pungent, fruity odor. D 0.783 (18/4C); bp 20.2C; mp −123.5C; vap press 740.0 mm Hg (20C); flash p −40F (−40C) (OC); specific heat 0.650; refr index 1.3316 (20C); wt 6.50 lb/gal (20C); miscible with water, alcohol, ether, benzene, gasoline, solvent naphtha, toluene, xylene, turpentine, and acetone.
Derivation: (a) Oxidation of ethylene; (b) vapor phase oxidation of ethanol; (c) vapor-phase oxidation of propane and butane; (d) catalytic reaction of acetylene and water (chiefly in Germany).
Grade: Technical 99%.
Hazard: Highly flammable; toxic (narcotic). Dangerous fire, explosion risk. Explosive limits in air 4–57%. TLV: 100 ppm in air.
Use: Manufacture of acetic acid and acetic anhydride, n-butanol, 2-ethylhexanol, peracetic acid, aldol, pentaerythritol, pyridines, chloral, 1,3-butylene glycol, and trimethylolpropane; synthetic flavors.

acetaldehyde ammonia. See aldehyde ammonia.

acetaldehyde cyanohydrin. See lactonitrile.

acetal resin. (polyacetal). A polyoxymethylene thermoplastic polymer obtained by ionically initiated polymerization of formaldehyde + CH_2 to obtain a linear molecule of the type $—O—CH_2—O—CH_2=CH_2—$. Single molecules may have over 1500—CH_2—units. As the molecule has no side chains, dense crystals are formed. Acetal resins are hard, rigid, strong, tough, and resilient; dielectric constant 3.7; dielectric strength 1200 volts/mil), 600 volts/mil (80-mil); dimensionally stable under exposure to moisture and heat, resistant to chemicals, solvents, flexing, and creep, and have a high gloss and low friction surface. Can be chromium-plated, injection-molded, extruded, and blow-molded. Not recommended for use in strong acids or alkalies. They may be homopolymers or copolymers.
Properties: D 1.425; thermal conductivity 0.13 Btu ft/(hr)(sq ft) (degree F); coefficient of thermal expansion 4.5 × 10^{-5}/degree F; specific heat 0.35 Btu/(lb)(degree F); water absorption 0.41%/24 hour; tensile strength 10,000 psi; elongation 15%; hardness (Rockwell) R120; impact strength (notched) 1.4 ft-lb/inch; flexural strength 14,100 psi; shear strength 9500 psi. Combustible, but slow burning.
Use: An engineering plastic, often used as substitute for metals, as in oil and gas pipes; automotive and appliance parts; industrial parts; hardware; communication equipment; aerosol containers for cosmetics.
See also "Delrin"; "Celcon."

acetamide. (acetic acid amine; ethanamide). CAS: 60-35-5. CH_3CONH_2.
Properties: Colorless, deliquescent crystals with a mousy odor. Soluble in water and alcohol; slightly soluble in ether; d 1.159; mp 80C; bp 223C; refr index 1.4274 (78.3C). Combustible.
Derivation: Interaction of ethyl acetate and ammonium hydroxide.
Grade: Technical; CP (odorless); intermediate; reagent.
Hazard: An experimental carcinogen.
Use: Organic synthesis (reactant, solvent, peroxide stabilizer); general solvent; lacquers; explo-

Library of Congress Catalog Card Number 92-18951
ISBN 0-442-01131-8

Printed in the United States of America

Published by Van Nostrand Reinhold
115 Fifth Avenue
New York, NY 10003

Chapman and Hall
2-6 Boundary Row
London, SE1 8HN

Thomas Nelson Australia
102 Dodds Street
South Melbourne 3205
Victoria, Australia

Nelson Canada
1120 Birchmount Road
Scarborough, Ontario M1K 5G4, Canada

16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Library of Congress Cataloging-in-Publication Data

Condensed chemical dictionary.
Hawley's condensed chemical dictionary.—12th ed./revised by Richard J. Lewis, Sr.
p. cm.
ISBN 0-442-01131-8
1. Chemistry—Dictionaries. I. Hawley, Gessner Goodrich, 1905-1983
II. Lewis, Richard J., Sr. III. Title.
QD5.C5 1992
540' .3—dc20 92-18951
CIP